

REPLACEMENT CLAIMS - VERSION WITH MARKINGS TO SHOW  
CHANGES MADE

1 19. (AMENDED) The method of claim 18 wherein [the] a magnetic material is  
2 disposed substantially parallel to the axis.

1 21. (AMENDED) The method of claim 18 wherein [the] a magnetic material is  
2 disposed substantially perpendicular to the axis. —

REMARKS:

CLAIM AMENDMENTS

The Applicants have amended claims 19 and 21 to provide proper antecedent basis for "magnetic material." Specifically both claims have been amended to recite --a-- magnetic material as opposed to "the" magnetic material. The Applicants submit that this amendment merely makes explicit that which was implicit in claims 19 and 21 as originally filed. As such, these amendments do not narrow the scope of claim 19 or 21 within the meaning of the decision in *Festo Corporation v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd* (234 F.3d 558).

CLAIM REJECTIONS 35 USC 103

The Examiner has rejected claims 1-29 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,059,783 to Stranjord (hereinafter Stranjord) in further view of U.S. Patent 6,404,942 to Edwards et al (hereinafter Edwards). In making the rejection, the Examiner states that Edwards teaches a method for measuring a position of a micro machined optical element comprising a magnetic sensor on the optical element, exposing the magnetic sensor to a magnetic field and evaluating a position of the element. The Examiner admits that Stranjord does not teach a change in a property of the sensor with respect to optical element change. The Examiner argues however that such is known in the prior art. The Examiner cites col. 5-6, lines 5-65 of Edwards in support of this contention. The Examiner concludes that it would have been obvious to one of ordinary skill in the art to measure property changes, as taught by Edwards, in the system of Stranjord.

The Applicants respectfully traverse the rejection. Independent claims 1 and 26 specifically recite "measuring a change in a property of the at least one magnetic sensor as the position of the micro machined optical element changes." The Examiner admits that Stranjord does not teach this feature. The Applicants submit Edwards does not teach or suggest this feature either. A simple word search of Edwards reveals that, although the word "sensor" does appear in the title of a publication listed on the first page, the words "sensor", "sense" and "property" appear nowhere in the description, claims, summary or abstract. Instead, Edwards teaches an optical switch having movable MEMS mirror is disposed in a trench that is filled with a non-conducting, low-viscosity, index-matching fluid. The index-matching fluid functions as a collimation-maintaining fluid that prevents the light beam from spreading in switch cross-points (see col. 2 lines 37-45).

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Furthermore, the section of Edwards cited by the Examiner (col. 5-6, lines 5-65) merely describes how the switch of Edwards is manufactured and how the fluid prevents beam spreading and relaxes the machining requirements for the facets of waveguides used in the switch. Edwards is thus entirely devoid of any teaching or suggestion of either a sensor or a change in a property of the sensor with respect to a position of the MEMS mirror as recited in claims 1 and 26.

Given that neither Stranjord nor Edwards individually teaches "*measuring a change in a property of the at least one magnetic sensor as the position of the micro machined optical element changes*" as set forth in claims 1 and 26, the applicants submit that no combination of Edwards with Stranjord teaches this feature either. Thus, the combination of Edwards with Stranjord simply does not teach all the limitations of claims 1 and 26 and a prima facie case of obvious is not present with respect to these independent claims. Therefore, the Applicants submit that claims 1 and 26 define inventions suitable for patent protection.

Furthermore, dependent claims 2-25 and 27-29 depend, either directly or indirectly, from claims 1 and 26 and recite additional features therefor. As such, and for the same reasons set forth above with respect to claims 1 and 26, the Applicants submit that these dependent claims define an invention suitable for patent protection.

In addition, with respect to claims 2-8, neither Stranjord nor Edwards teaches a sensor of any kind disposed on a movable portion of a micro machined optical element. Specifically, Edwards does not teach that the sensor senses a magnetic field used to actuate the micro machined optical element as set forth in claim 2. Furthermore, Edwards does not teach a sensor of any kind, Edwards does not teach or suggest placing a sensor on a moveable portion of a micro machined optical element as recited in claim 3, on a fixed portion as in claims 5 or 6, on a base as in claim 7 or on a top chip as in claim 8. With respect to claim 9, Edwards teaches *actuators* 25, not sensors, coupled together in the circuits shown in FIGs. 13-14 (see col. 9, lines 49-52). Furthermore, with respect to claims 9, 10, 16 and 17, the Applicants submit that the circuits shown in FIGs. 13 and 14 of Edwards are neither bridge circuits nor Wheatstone bridge circuits since neither measures a property of any sensor. With respect to claims 4 and 13, Edwards is completely devoid of any teaching or suggestion any of the types of sensors listed in these claims. With respect to claim 12, Edwards is devoid of any teaching or suggestion of a magnetic structure that changes the magnitude or direction of the magnetic sense field. Furthermore Edwards is devoid of any teaching or suggestion of a magnetic sensor with a

serpentine shape as recited in claim 14 or a "C"-shaped magnetoresistive sensor as set forth in claims 20 and 22. Furthermore, neither Stranjord nor Edwards teaches a magnetic material aligned either parallel or perpendicular to an axis of rotation as set forth in claims 19 and 21 respectively. Finally, the Applicants submit that neither Stranjord nor Edwards teaches temperature measurement, compensation, and regulation as set forth in claims 23-25 and 27-29. As such, for at least these additional reasons, dependent claims 2-10, 12-14, 16, 17, 19-25 and 27-29 define an invention suitable for patent protection.


#### OTHER REFERENCES CITED

- 10 The Examiner has made U.S. Patent 6,198,856 to Schroeder et al. (hereinafter Schroeder) of record, but has not relied upon it. The Applicants submit that Schroeder is not pertinent in that it teaches neither sensors nor changes in sensor properties with position of a MEMS moveable element.

#### CONCLUSION

- 15 In view of the above remarks, the Applicants submit that all pending claims are allowable over the prior art of record. Therefore, the Applicants respectfully request that the Examiner reconsider the application and issue a Notice of Allowance in the next Office Action.

Respectfully submitted,

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